

GIRDLESTONE ARTHROPLASTY WITH FLAP RECONSTRUCTION FOR HIP INFECTION AND PRESSURE ULCER-RELATED OSTEOMYELITIS IN SPINAL CORD INJURY: A SYSTEMATIC REVIEW



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INTRODUCTION

Pressure ulceration affects approximately one third of patients living with spinal cord injury (SCI). When an ulcer extends into deeper tissues, the resulting septic arthritis or osteomyelitis is challenging to eradicate by debridement and antibiotics alone. Girdlestone resection arthroplasty combined with flap coverage is an established salvage approach, but evidence regarding outcomes remains limited, with heterogeneous definitions of success.

AIM

To systematically evaluate the outcomes of Girdlestone arthroplasty with flap reconstruction in SCI, with a focus on staging, flap selection, complications, and treatment failure.

RESULTS

1983-2026

303 studies screened

20 studies included
417 patients

16/20 studies
used vastus lateralis

14.4
months
average follow-up

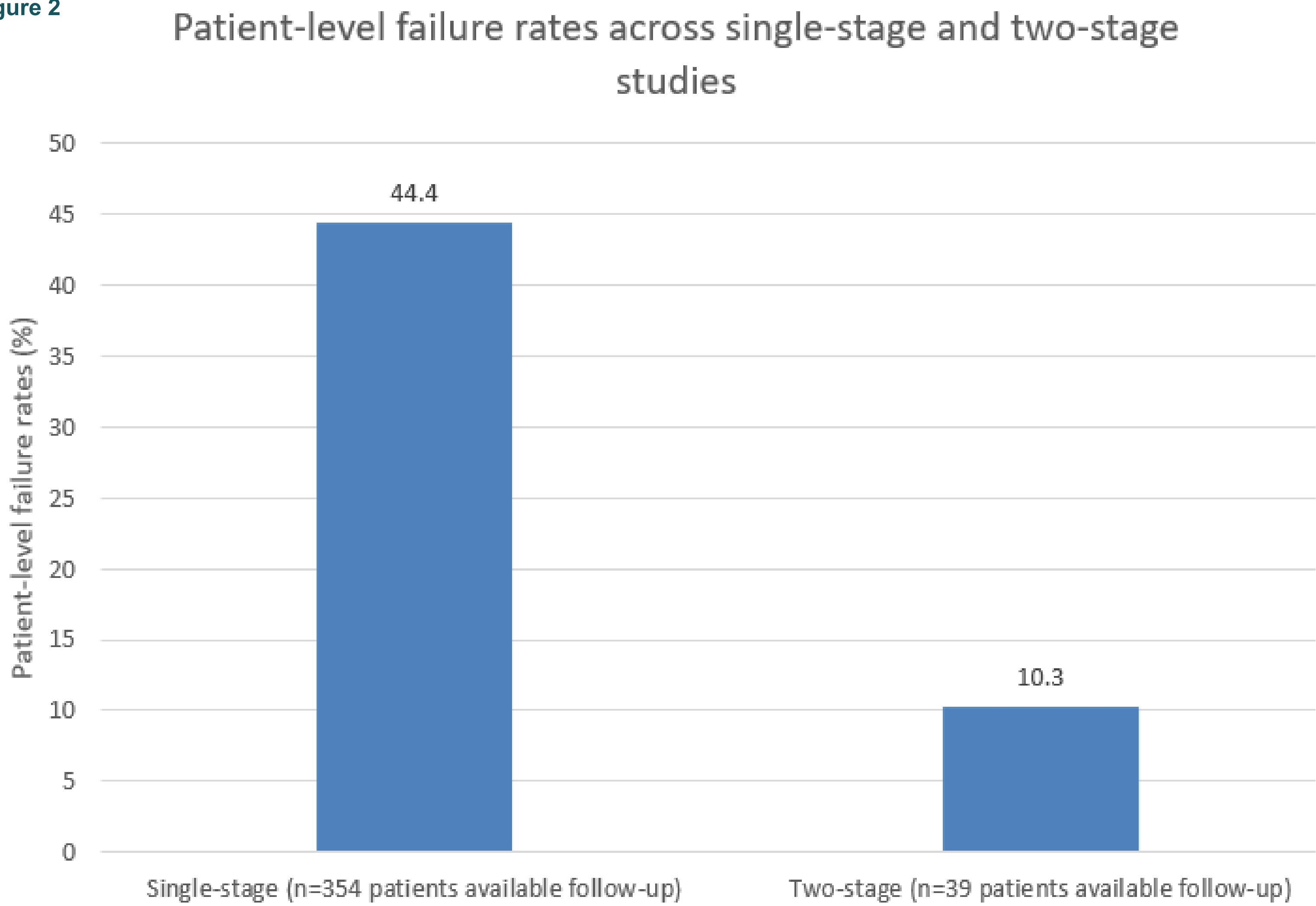
14/20 studies
were single-stage

35% of studies
reported ≥1 failure

0-48.8%
failure rate range

28.6%
wound dehiscence

Figure 2



Evans is excluded from comparison as it involves mixed staging.
Larson (2013): failure denominator converted from per-flap (4/13) to per-patient (4/11); this is an approximation as individual patient outcomes were not reported.
Patients lost to follow-up or had an unrelated death were not included in the calculation.

MATERIALS AND METHODS

SEARCH

- PubMed, Scopus, Google Scholar databases
- Inception to Apr 2026
- PRISMA 2020 checklist
- PIO framework

ELIGIBILITY

- Included if all criteria presents:
- SCI patients
 - Hip septic arthritis or osteomyelitis
 - Girdlestone AND flap reconstruction

STAGES DEFINITION

Single Stage = resection + flap same session
Two Stage = planned interval between resection and flap

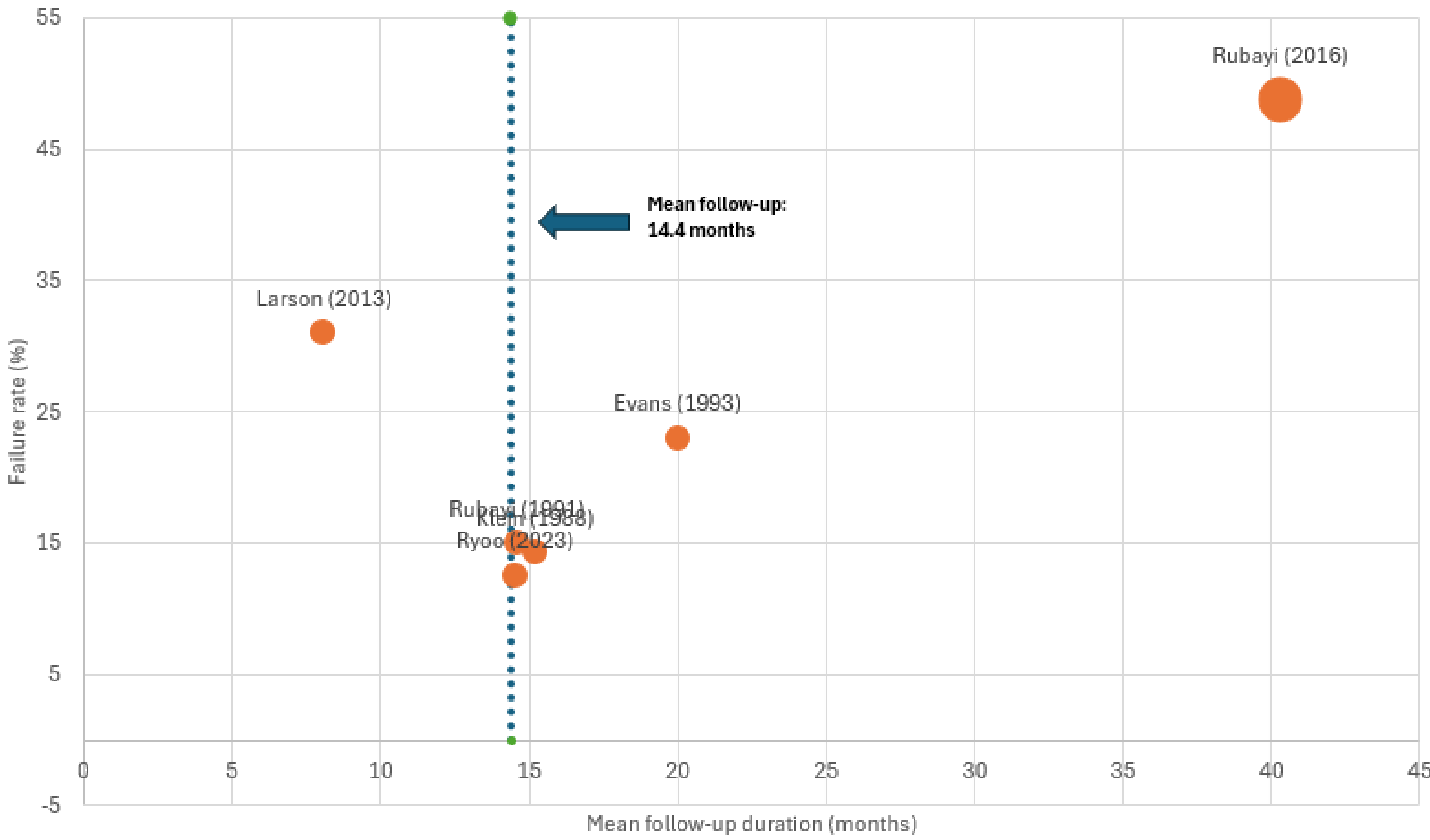
SUCCESS DEFINITION

Eradication of disease (infection, ulceration or both) without further operative intervention during follow-up

FAILURE DEFINITION

- Recurrence or persistence of infection/ulcer
- Revision surgery
- Patients lost to follow-up were excluded

Figure 1 Scatterplot demonstrating the relationship between failure rate and follow-up duration



CONCLUSIONS

Girdlestone resection combined with musculocutaneous flap reconstruction is a viable salvage strategy for pressure ulcer-related hip disease in SCI, providing effective dead-space obliteration and soft-tissue coverage. Although the two-stage approach demonstrated a lower reported patient-level failure rate than single-stage procedures (10.3% vs. 44.4%), the evidence is limited by the small two-stage cohort (n=39 with available follow-up) and substantial heterogeneity across studies. Single-stage procedures may offer practical advantages by reducing operative burden and hospitalisation in this high-risk population, while both approaches demonstrate potential benefits and limitations. Higher reported failure rates in larger studies and with longer follow-up may reflect more complete detection of late adverse events rather than true procedural inferiority.